International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

Evaluating Levonorgestrel Intrauterine System (Mirena) Usage in Rural India for AUB and Prevention of Hysterectomy

Dr. Rafiq Liza[1], Dr. Saif ul Yamin[2]

Abstract: ***Abnormal uterine bleeding AUB is a common gynaecological complaint, especially among perimenopausal women, and often requires surgical intervention like hysterectomy. However, conservative treatments are increasingly preferred to manage costs and preserve fertility. This study, conducted at a district hospital in Pulwama, evaluated the efficacy of the Levonorgestrel Intrauterine System Mirena in 100 women aged 4055 suffering from AUB. Mirena significantly reduced menstrual blood loss, with 60% of women achieving amenorrhea by two years. The device improved haemoglobin levels, had a high satisfaction rate of 85%, and offered a viable nonsurgical alternative to hysterectomy. Minor side effects were noted but did not require intervention in most cases. These findings demonstrate that Mirena is an effective and cost - efficient treatment for AUB, particularly in rural settings with limited access to surgical options.***

Keywords: Abnormal uterine bleeding, Mirena, levonorgestrel intrauterine system, conservative treatment, rural India

1. Introduction

Abnormal uterine bleeding in perimenopausal women is one of the most common gynaecologic complaint in contemporary gynaecology. Excessive menstruation is often incapacitating and expensive to treat and can severely affect a woman's quality of life both personal as well as social. Nearly 30% of all hysterectomies are performed to alleviate heavy menstrual bleeding. Historically, definitive surgical correction has been the mainstay of treatment for menorrhagia. But today modern gynaecology has trended toward conservative therapy both for controlling costs and the desire of many women to preserve their uterus. Traditionally abnormal uterine bleeding is treated with a variety of medical and surgical options. The appropriate treatment depends on the patient's physiology and the results of investigations.

Medical treatments

Hormonal
Hormone therapy can help with bleeding and other perimenopausal symptoms like hot flashes and night sweats. Options include:

- Estrogen - progestin oral contraceptives
- Oral progestins, which can be given cyclically or only when flow is heavy
- Levonorgestrel - releasing intrauterine system (IUD)
- Non - hormonal

Options include:

- Nonsteroidal anti - inflammatory drugs (NSAIDs)
- Antifibrinolytic
- Oral tranexamic acid
- Danazol
- Gonadotropin - releasing hormone agonists

Surgical treatments

- Hysterectomy

The definitive treatment

- Endometrial ablation

A lower - risk surgical option that may stop all menstrual bleeding, but some people may experience light bleeding or spotting after

- Hysteroscopy

A diagnostic and therapeutic approach with a 94% sensitivity and 89% specificity for detecting abnormalities

- Other surgical options

For patients with chronic uterine bleeding, options include myomectomy, polypectomy, or uterine artery embolization

The common treatment that is prescribed in rural india for abnormal uterine bleeding is either hormonal therapy which have got lot of side effects and if symptoms are not controlled by conservative treatment then surgical treatment in the form of hysterectomy is done. Most of the patients presently do not want to go for hysterectomy plus availability of limited resources in peripheral hospital of rural india patient usually get dates for hysterectomy 6 months to one year. Mirena is a hormonal intrauterine device classified as a long - acting reversible contraceptive method. T - shaped polyethylene frame (T - body) with a steroid reservoir (hormone elastomer core) made of a mixture of levonorgestrel and silicone (polydimethylsiloxane), containing a total of 52 mg levonorgestrel around the vertical stem. The device releases the hormone at an initial rate of 20 µg/day and declines to a rate of 14 µg after 5 years, which is still in the range of clinical effectiveness. It causes a local foreign body reaction characterized by an increase in inflammatory cells including neutrophils, lymphocytes, plasma cells, and macrophages is seen. These changes are finalized within 3 months of insertion of levonorgestrel intrauterine system (LNG - IUS). Hormonal actions are caused by the levonorgestrel component.

Aim
To see efficacy of levonorgestrel intrauterine system (Mirena) in Abnormal uterine bleeding.

Objectives

1) To prevent Patients from side effects of hormonal therapy traditionally given for abnormal uterine bleeding.
2) Patients desire to safe uterus and to prevent patients from undergoing hysterectomies which saves theatre time for other procedure in rural hospitals

2. Material and Methods

The study was carried out in District hospital Pulwama which represent rural india hospital. After the approval by the ethics committee of the hospital 100 women aged between 40 and 55 years with at - least one issue with abnormal uterine bleeding (AUB) were included in the study after taking written and informed consent over a period of 3 years. These patients came to the outpatient department (OPD) with various menstrual complaints like menorrhagia in 30% patients (30/100), polymenorrhagia in 50% patients (50/100), menometrorrhagia in 5% patients (5/100), while some patients presented with pelvic congestion in 5% patients (5/100) and 10% dysmenorrhea (10/100)

The study included women with uterine size <12 weeks with no cervical, vaginal pathology and a negative pap smear. Premenstrual dilatation and curettage (D & C) was done in all women and women with histopathology report negative for malignancy were included. Women with congenital or acquired uterine anomaly, intramural and subserous fibroids more than 3 cm and submucous fibroids distorting the uterine cavity, acute pelvic inflammatory disease, genital bleeding of unknown etiology, liver disease, and known or suspected carcinoma of the breast were excluded. A detailed history and examination (general, systemic, pelvic, and breasts) was done. Ultrasound Pelvis was done on 5 day of menses. Any obvious pathologies like fibroids, endometriosis, endometrial polyps, ovarian cysts, or any other adnexal pathology were diagnosed. Mirena was inserted in pre - menstrual period. Before insertion of Mirena a diagnostic Dilatation and curettage was done and sample was send for histopathology to rule out malignancy. Prior to insertion, the patient was counseled regarding the altered bleeding pattern known to occur with Mirena for 3 - 6 months. Patient was counseled regarding amenorrhea post insertion. It was inserted in operation theater (OT) under minimal sedation. Post insertion, the patient was asked to maintain a menstrual calendar for 4 months, wherein she would mark the days when she has spotting or bleeding. The women were called for follow - up after 1 month, then 4 months, and then yearly (for maximum 2 years); and asked regarding the relief they have obtained from the antecedent menstrual complaints. A detailed general, systemic, pelvic (to see for Mirena threads), and breasts examination was done at every visit. Follow - up ultrasound was done at every visit to see for Mirena location and if there were any changes in the original pelvic pathology or development of a new pathology like ovarian cysts. Hemoglobin (Hb) estimation was done after 4 months. The efficacy of Mirena was measured in the form of subjective symptomatic improvement along with improvement in quality of life.

3. Results

In our study, the average age of the cases was 42 years (38 - 47 years). Among the patients who came to the OPD, all patients were multipara, 82% patients were not sterilized, while 18% patients had undergone tubal sterilization. Insertion was done in the operation room under sedation in a11 patients, including 65 patients with previous cesarean section (one or two).70% of the patients had normal uterine size, followed by 30% who had uterine size of 8 - 10 weeks.70% of the patients had normal ultrasound findings followed by 30 % with findings of adenomyosis. A reduction in menstrual blood loss (MBL) is seen progressively over a period of 1 month, 3 months, 1 year and 2 years. In the first follow - up itself, 77% women had only spotting and 60% became amenorrheic by the end of 1 year. All women (60%) became amenorrheic at the end of 2 years. Mean duration from insertion to amenorrhea was 8 months. After insertion, the mean Hb% showed a significant rise of 7.8% form baseline. Out of the 100 patients, eleven patients failed to respond to Mirena in the first 1 year. Mirena was subsequently removed in 8 patients and they underwent hysterectomy. Mirena was spontaneously expelled in four patient within 1 month of insertion.

64 percent of women had no side effects. Others had minor side effects for which assurance was enough. Mirena had to be removed only in one patient because of complaints of pain post insertion. Ovarian cysts (simple) were seen in one patient which disappeared in 4 months.

Mirena had a satisfaction rate of 85%. Mirena failed to control menorrhagia in 8 women. These women subsequently underwent hysterectomy. Mirena was expelled in 4 women

4. Discussion

Excessive menstruation is often incapacitating and expensive to treat and can severely affect a woman's quality of life both personal as well as social. Two - thirds of women with menorrhagia show evidence of iron deficiency anemia beyond 80 ml of blood loss. Heavy menstrual bleeding is a subjective finding, making the exact problem difficult to define (15). Treatment regimens must address the specific facet of the menstrual cycle which the patient perceives to be abnormal (i. e., cycle length and quantity of bleeding). There are various methods available for treatment of menorrhagia which includes medical management and surgical management. Many women are not happy with medical treatment and end up undergoing surgery. Nearly 70% of all hysterectomies are performed to alleviate heavy menstrual bleeding.

Mirena is a hormonal intrauterine device classified as a long - acting reversible contraceptive method. The device releases levonorgestrel at an initial rate of 20 µg/day and declines to a rate of 14 µg after 5 years, which is still in the range of clinical effectiveness (1). Most of the hormone stays inside the uterus, and only a small amount is absorbed into the rest of the body.

In our study, Mirena caused a 80% decrease in median MBL at 4 months, 95% decrease in MBL by 1 year, and 60% decrease (amenorrhea) by 2 years. Results of this study are similar to other studies done in the past. Hysterectomy was done only in eight patients. Hence, our study has proved that Mirena is an excellent alternative to hysterectomy. It is associated with improved psychological well - being and has proved to be very cost - effective. This has also been proved in various other studies done in the past.

The efficacy of Mirena was tested by subjective improvement and improvement in quality of life as told by patient as well as by Hb estimation after 4 months post insertion (9).

Various studies have shown Mirena to be more effective in heavy menstrual bleeding than antifibrinolytics, oral progestogens, and oral contraceptive pills (1).

In our study, mean Hb% showed a significant rise of 7.8% form baseline. Significant increase in Hb was also seen in other studies.

85% patients were satisfied with Mirena insertion, while 15% were not. Reasons for disliking were minor side effects, threads being felt by partner, and intermittent spotting or continuous bleeding (11). But none of them required removal except in one patient in whom Mirena was removed due to pain after insertion.

5. Conclusion

Mirena has been found to be superior to medical treatment and hysterectomy. It provides excellent patient satisfaction and compliance. LNG - IUS can reduce the MBL and help to improve anemia (12). It can be safely used in obese patients. It is also a very good alternative for women who have AUB and desire contraception. It is safe in women who have undergone prior abdominal surgeries such as cesarean or myomectomy. LNG - IUS is beneficial in the treatment of uterine fibroid, endometriosis, adenomyosis, and endometrial hyperplasia. Side effects are generally mild and most of the times assurance is enough to ensure continuation of device. Health - related quality of life outcomes and cost effectiveness with LNG - IUS was found to be better than hysterectomy or endometrial ablation. Thus the study concluded that Mirena, the levonorgestrel - releasing intrauterine system, provides an incredible nonsurgical alternative in treatment of menorrhagia which is reversible and spares fertility.

References

[1] Lethaby A, Hussain M. Progesterone or progestogen - releasing intrauterine systems for heavy menstrual bleeding. Cochrane Database Syst Rev.2015; (4): CD002126.
[2] Fraser IS, Langham S, Uhl - Hochgraeber K. Health - related quality of life and economic burden of abnormal uterine bleeding. Expert Rev Obstet Gynecol.2009; 4: 179 - 89.
[3] Sharma A, Dogra Y. Trends of AUB in tertiary centre of Shimla hills. J Midlife Health.2013; 4: 67 - 8.
[4] Wright RC. Hysterectomy: past, present, and future. Obstet Gynecol.1969; 33: 560 - 3.
[5] Andersson K, Odlind V, Rybo G. Levonorgestrel - releasing and copper - releasing (Nova T) IUDs during five years of use: a randomized comparative trial. Contraception.1994; 49 (1): 56 - 72.
[6] Seeber B, Ziehr SC, Gschliesser A, Moser C, Mattle V, Seger C, et al. Quantitative levonorgestrel plasma level measurements in patients with regular and prolonged use of the levonorgestrel - releasing intrauterine system. Contraception.2012; 86: 345.
[7] Guttinger A, Critchley HO. Endometrial effects of intrauterine levonorgestrel. Contraception.2007; 75: S93 - S8.
[8] Endrikat J, Shapiro H, Lukkari - Lax E, Kunz M, Schmidt W, Fortier M. A Canadian, multicentre study comparing the efficacy of a levonorgestrel - releasing intrauterine system to an oral contraceptive in women with idiopathic menorrhagia. J Obstet Gynaecol Can.2009; 31: 340 - 7.
[9] Irvine GA, Campbell - Brown MB, Lumsden MA, Heikkilä A, Walker JJ, Cameron IT. Randomised comparative trial of the levonorgestrel intrauterine system and norethisterone for treatment of idiopathic menorrhagia. Br J Obstet Gynaecol.1998; 105: 592 - 8.
[10] National Institute for Health and Clinical Excellence. Heavy menstrual bleeding. NICE clinical guideline 44 (NICE, London).2007.
[11] Dhamangaonkar PC, Anuradha K. Levonorgestrel intrauterine system (Mirena): An emerging tool for conservative treatment of abnormal uterine bleeding. J Midlife Health.2015; 6 (1): 26 - 30.
[12] Heikinheimo O, Gemzell - Danielsson K. Emerging indications for the levonorgestrel - releasing intrauterine system (LNG - IUS). Acta Obstet Gynecol Scand.2012; 91 (1): 3 - 9.
[13] Kim ML, Seong SJ. Clinical applications of levonorgestrel - releasing intrauterine system to gynecologic diseases. Obstet Gynecol Sci.2013; 56 (2): 67 - 75.
[14] Vasudeva S, Malhotra G, Gulati SK, Chandel YS. Mirena and nuvaring in management in dysfunctional uterine bleeding. Int J Conte Med Res.2018; 5 (4): D5 - D9.
[15] Ozdegirmenci O, Kayikcioglu F, Akgul MA, Kaplan M, Karcaaltincaba M, Haberal A, et al. Comparison of levonorgestrel intrauterine system versus hysterectomy on efficacy and quality of life in patients with adenomyosis. Fertil Steril.2011; 95: 497 - 502.
[16] Emily Davis; Paul B. Sparzak. Abnormal Uterine Bleeding. Statpearls sep 4, 2023